



# greenability

from thyssenkrupp OU Materials Eastern Europe

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thyssenkrupp



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**Jörg Heiles**  
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“Moving  
Industries for  
Generations.”

In the face of today's pressing challenges, the responsible use of resources has become crucial. At thyssenkrupp OU Materials Eastern Europe, we acknowledge this reality and act accordingly. Our commitment aligns with changing social expectations as well as recent EU regulations, such as the **Carbon Border Adjustment Mechanism (CBAM)** and the **Corporate Sustainability Directive (CSRD)**.

It is our goal to be our customers' first choice for sustainable products and services that help them decarbonize their supply chain. Through intelligent and digital solutions, we offer comprehensive support to both our customers and suppliers in their journey toward a more sustainable use of resources across the entire value chain.

With greenability from thyssenkrupp OU Materials Eastern Europe, we offer our customers the opportunity to take their individual path to a more sustainable future. That is our value proposition. That is “Moving Industries for Generations.”

Join us as we pave the way for a greener tomorrow and find out more about our initiatives, products, and services!

As a materials service and distribution provider, we strive to play an active role in shaping the green transformation of our industry. We offer state-of-the-art intelligent and digital solutions to support our customers and suppliers in adopting a more sustainable approach to resource utilization across the entire value chain.

## We go BEYOND

Our vision guides our actions. It is the cornerstone for the implementation of our strategy as activity. We have declared it our highest goal to create a world in which resources are used in the best way possible – for shared success and a **sustainable future**. Our approach goes beyond the internationally recognized ESG criteria (environmental, social,

governance). To these, we have added points that are of central importance to us and the success of our business – and we set our goals more ambitiously than the applicable regulatory context demands. Whereas the objectives of the Paris Agreement call for climate neutrality by 2050, we want to achieve this goal a full 20 years earlier.

### greenability strategy:

With greenability, we turn our vision of sustainability into our own green strategy, building on three pillars: Transparency, Services and Materials.



### Transparency is the first step towards change.

To achieve their sustainability goals, companies first need transparency about the drivers of their CO<sub>2</sub> emissions. With our independently verified Product Carbon Footprint (PCF) certificates, we now provide you with this information. The calculation covers all direct and indirect emissions along the entire value chain, empowering you to measure your environmental impact and implement changes to reduce emissions.



### Making conscious decisions to reduce CO<sub>2</sub> emissions.

Terms such as “green steel” and “green aluminum” lack clear definitions currently. When classifying our materials, we therefore consider the manufacturing processes as well as internationally recognized standards such as the Greenhouse Gas Protocol and ISO standard 14067. This allows us to create a clear and comprehensible classification into three classes to give you certainty and guidance when making conscious decisions during material procurement.



# greenability

## transparency

We assist you in reaching complete **CO<sub>2</sub>** transparency throughout your entire supply chain.

### Optimal use of resources

In the Transparency area, we offer our customers certified calculation of **product carbon footprints (PCF)**. In our calculations, we consider the entire emissions of our products according to the cradle-to-gate approach, i.e. from production to deliver to our customers' factory gates. We provide you with the information security you need to make optimal decisions.

### CSRD and CBAM: Security regarding regulatory obligations

Certified PCFs are required to fulfil reporting obligations under the EU **Corporate Sustainability Reporting Directive (CSRD)** and the **Carbon Border Adjustment Mechanism (CBAM)** - thyssenkrupp OU Materials Eastern Europe provides you the relevant data.

### Carbon Tracking: Parts & Components

Determining the product carbon footprint for every part and component is a complex and costly process that poses significant challenges for many companies. We are here to support you.

Once all components of the finished product have been identified, we examine the entire procurement process **"from cradle to gate plus end of life"** – i.e. from primary material and production to transportation, storage, and delivery to you - with regard to the **CO<sub>2</sub>** emissions generated.

The primary data gathered through this method is complemented with information from licensed databases and processed by a TÜV-certified partner, enabling us to provide you with the exact **CO<sub>2</sub>** footprint of your product.

#### Your benefit:

You receive important data for your life cycle assessment building transparency in your supply chain.

# greenability

## services

Do you wish to make more sustainable decisions but are unsure how to get started? We are committed to assist you in partnership.

### Sustainability consulting for industrial companies

No matter where you are on your journey to greater sustainability, thyssenkrupp OU Materials Eastern Europe can support you in making critical decisions. For example, we can collaborate with you as a consulting service to assess your portfolio, identifying areas for optimization, and sharing specialist knowledge.

### Carbon Compensation

We jointly select an offsetting project from our partner and invest the corresponding amount of the **CO<sub>2</sub>** value emitted. The projects are independently audited. The price of carbon credits per project varies depending on the project category.

### Offsetting with the Voluntary Carbon Credit Desk

With the VCC Desk we provide you the opportunity to purchase and retire Carbon Credits.

#### Your benefit:

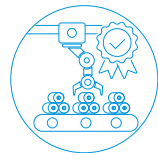
You enhance the sustainability of your company, and you can label your products as "Climate Value Add Products through Carbon Credits", or acquire a climate neutral status with the respective ISO or TÜV certification. This confirms that all hard to abate / not reducible emissions of the labelled service have been calculated and offset with recognized climate protection projects.



# greenability materials



Our material classes are simple and easy to understand. To ease orientation on the market, we divide our materials into three categories. They are based on the certified calculation of the actual product carbon footprint (PCF) from production to the customer and are based on common manufacturing processes.



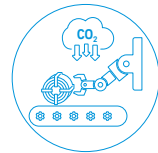
**Classic** – Proven quality from conventional production lines

These materials represent the highest quality and decades of expertise. Production is guaranteed in proven large-scale plants, ensuring that the material quality precisely aligns with customer requirements.



**Benefit** – Partially CO<sub>2</sub> optimized products

These materials combine the highest quality of our Classic products with a clearly traceable CO<sub>2</sub> reduction. These products maintain a good balance between price and sustainability.



**Advance** - CO<sub>2</sub>-optimized materials with sustainable production methods

These materials are the culmination of significant technological advancements, aiming for the maximum CO<sub>2</sub> reduction possible. They incorporate the entire material know-how of thyssenkrupp OU Materials Eastern Europe while maintaining the smallest achievable CO<sub>2</sub> footprint.

Experts at thyssenkrupp Steel have been working on sustainable solutions for a long time. For more information on our current projects, click here.

Carbon capture and use (Innovative and sustainable technologies for the industry of the future)

➔ <https://www.thyssenkrupp.com/en/newsroom/content-page-162.html>

Carbon direct avoidance: hydrogen based path (tkH2Steel)

➔ <https://hydrogen.thyssenkrupp.com/en/>

Are you interested in green materials and services?

Let us work together for approaching this topic of Sustainability which is so important for us and the following generations!



## CO<sub>2</sub> product classification for steel and stainless steel

In the field of steel production, there is no standard definition for “green steel”. The term is used for various sustainable practices, including climate-neutral steel, production using green hydrogen, steel with certified emission content, and CO<sub>2</sub>-reduced steel or low emissions.

The critical phase in steelmaking, contributing significantly to CO<sub>2</sub> emissions, is the production of pig iron from fresh iron ore. To mitigate these emissions and improve sustainability during steel production, processes need to be optimized. This includes substituting fossil fuels with renewable energy, particularly hydrogen. Additionally, emissions reduction can be attained through calculation methods.

For the **Classic** products, conventional blast furnace processes and oxygen blowing processes are used. For the **Benefit** product type, CO<sub>2</sub> reduction methods include optimized blast furnace processes (BF-BOF) as well as direct reduction processes and electric arc furnace processes (DR-EAF). The maximum CO<sub>2</sub> reduction can be achieved in the **Advanced** products via optimized direct reduction processes and electric arc furnace process (DR-EAF), and Electric arc furnace processes (EAF).

### Challenges of “green steel”

Despite promising prospects, challenges persist in climate-neutral steel production. Conventional blast furnaces maintain a cost advantage, and the infrastructure for hydrogen-based direct reduction is still under development, with only small pilot plants currently operational. Substantial investments are required for new direct reduction plants and electric arc furnaces, while green hydrogen availability still poses challenges. The surge in electricity demand needs to be balanced through the expansion of renewable energies, and optimizing the circular economy proves to be

an important task. Additionally, concerns about carbon leakage within the European emissions trading system further amplify the complexity of the situation.

### The advantages of choosing “green steel”

Why is procuring climate-neutral steel worthwhile? It ensures regulatory compliance and markedly reduces environmental impact through the adoption of low-carbon production methods. This investment in sustainable steel not only fuels innovation but also enhances corporate reputation, resonating positively with both investors and the public.





## CO<sub>2</sub> product classification for aluminum

Aluminum production, while vital, poses significant environmental challenges, with two percent of global CO<sub>2</sub> emissions attributed to it. In order to achieve “green aluminium”, we need to deal with the complex challenges tied to its production. Key steps to cut CO<sub>2</sub> emissions include shifting to renewable energy sources in the production process. Decarbonization needs a thorough approach that simultaneously addresses social and environmental impacts. The commitment to “green aluminium” involves significant efforts,

such as investing in research, rehabilitating mined areas, and adopting innovative operating practices to manage waste and protect biodiversity. A crucial part of decarbonization involves implementing cutting-edge smelting technology designed to remove carbon emissions from the aluminum production process.

Due to its high recyclability, the production of aluminum is categorized into primary and secondary processes.



### Primary aluminum:

The extraction of aluminum involves a complex procedure comprising two distinct technological phases: the Bayer process and the Hall-Héroult process. Initially, aluminum oxide is chemically extracted from bauxite (Bayer process). Subsequently, in the Hall-Héroult process, it undergoes reduction to liquid aluminum through fused-salt electrolysis in electrolysis cells operating at high temperatures and utilizing electricity.



### Secondary aluminum:

Secondary aluminum is acquired through the recycling of used aluminum. Collected items such as scrap, packaging, or aluminum products undergo collection, cleaning, and melting down in smelting furnaces.



## CO<sub>2</sub> product classification for copper

The biggest potentials for CO<sub>2</sub>-reduced copper production are the scrap quota and the use of renewable energies. The environmental impact varies across key stages:



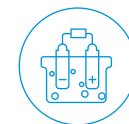
### Ore Mining (1-5% CO<sub>2</sub>e):

Optimizing ore mining processes and minimizing associated emissions can contribute to reducing the overall carbon footprint in copper production.



### Ore Processing (e.g., Converter) (5-10% CO<sub>2</sub>e):

Implementing advanced technologies and refining methods in ore processing offers opportunities for emissions reduction.



### Electrolysis (60-85% CO<sub>2</sub>e):

This stage represents a substantial portion of carbon emissions. Transitioning to cleaner energy sources, especially renewable energies, for the energy-intensive electrolysis process can significantly cut down the carbon footprint of copper production.



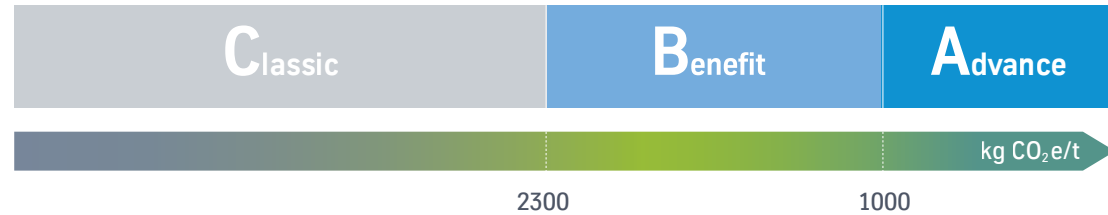
### Shaping (5-15% CO<sub>2</sub>e):

The shaping phase also plays a role in emissions, and adopting efficient shaping techniques and materials can aid in further reducing carbon emissions.

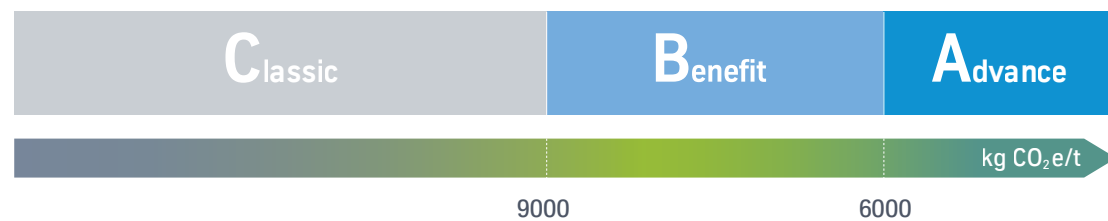


# CO<sub>2</sub> classification by materials

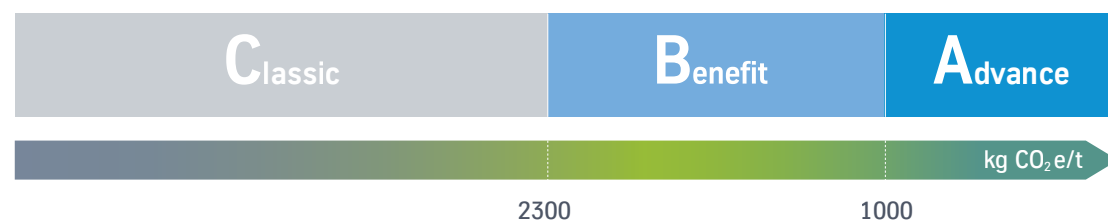
CO<sub>2</sub> footprint of steels (basic and quality steel and stainless steel)



CO<sub>2</sub> footprint of aluminium



CO<sub>2</sub> footprint of copper







thyssenkrupp OU Materials  
Eastern Europe  
[www.thyssenkrupp-materials-eastern-europe.com](https://www.thyssenkrupp-materials-eastern-europe.com)

## Subsidiaries

Bulgaria  
<https://www.thyssenkrupp-materials.bg>

Croatia  
<https://www.thyssenkrupp-materials-services.com/en/locations>

Czech Republic  
<https://www.thyssenkrupp-materials.pl/pl/ceska-republika>

Hungary  
<https://www.thyssenkrupp-materials.hu>

Lithuania  
<https://www.thyssenkrupp-materials.pl/pl/lietuva>

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